

Electroacoustic concert and happening performances of the '60s and early '70s in Finland

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Abstract

In this paper, I explore different examples of how the new means of performing music in concert and happening settings manifested in the early years of electroacoustic music in Finland. No single point when electroacoustic music arrived in Finland can be pointed out. The development was slow and the central-European trends never landed in Finland in their pure form. Experimental concert performances of the radical young generation of musicians played a significant role in the emergence of the electronic medium in the Finnish music scene. The young composers and artists absorbed influences quite freely. Although their work can be seen even as a conscious protest against tradition, influences from the works of Karlheinz Stockhausen and John Cage, for example, were strong.

This paper focuses on the works that expanded the traditional organization of a concert performance, introduced new means to perform electroacoustic music or applied electronic music technology beyond a music concert setting. These include, for example, film music, art exhibitions, happenings and even poem reading events. The examples are gathered from the works of composers Henrik Otto Donner (1939-2013) and Erkki Salmenhaara (1941-2002), avant-garde artist Mauri Antero Numminen (b. 1940), experimental film maker Eino Ruutsalo (1921-2001), as well as their close collaborator, electronic musical instrument designer Erkki Kurenniemi (b. 1941).

Early development of Finnish electroacoustic music

Electroacoustic music arrived in Finland fairly late and slowly. The first contacts with European traditions were made already in the mid-50s when Finnish composers started annually to take part in the Darmstadt International Summer Courses for New Music. In addition, a strong inspiration for the Finnish audience were the several visits of contemporary composers such as Karlheinz Stockhausen (1958, 1961, 1962), Luigi Nono (1962, 1963), John Cage (1964) and György Ligeti (1965) (Heiniö, 1988, p. 25). Stockhausen's lectures, for example, in 1958 in Helsinki and Turku, were followed by 750 attendants in total. The conversation in the press on new music was vivid and the radio broadcasts of international works were frequent. Finnish composers were, however, held back by limited technical resources.

Although electronic sounds were used frequently in radio plays (see a chronical list of works created in Finland in Kuljuntausta 2008, pp. 332-357), the first official works composed in Finland were two sporadic pieces: the over an hour long radiophonic adaptation of Aldous

Huxley's *Brave New World* (1958) by Martti Vuorenjuuri and *Three Electronic Studies* (1960) by Bengt Johansson. Vuorenjuuri's work had to wait for eight years for its first public performance due to the licensing issues of the movie rights for Huxley's book. Only one private performance was arranged in 1959 for the press and invited guests. Johansson's work, on the other hand, was first premiered already in 1960 and later in a tape music concert of modern music festival Jyväskylän kesä in 1963 (Heiniö, 1995, pp. 179-181; Ruohomäki, EH14/1-5). As noted by Kuljuntausta (2008, p. 308), for example, most of the Finnish electronic works were heard only once or twice and the overall public access to this new music was restricted.

The association *Suomen Musiikkinuoriso* (the Finnish Musical Youth Association) had a pivotal role in introducing new music in Finland. It organized a regularly broadcasted radio programme *Musica Nova* and its members wrote and edited several issues of the *Kirkko ja Musiikki* (Church and Music) magazine, a periodical which soon became the voice for new music. Although the association was founded already in 1957 they held their own first concert not earlier than in December 1962. The following year was very active and it can be considered even as a watershed in the history of Finnish electroacoustic music. During 1962-1963 Suomen Musiikkinuoriso organized over ten concerts and its members realized most of the electroacoustic works composed in Finland in 1963. The association was dissolved in 1965 (Heiniö, 1988, pp. 25-28; Ruohomäki, EH14/1-19, EH26/1-6).

Challenging the traditional organization of a concert setting

During the first years of the 1960s, composer Henrik Otto Donner visited most of the major studios in Europe, became acquainted with many leading contemporary European composers and avant-garde artists and introduced himself to modern composition methods including serialism, the techniques of both elektronische Musik and musique concrète (Ruohomäki, 2013, pp. 6-7). These influences can be heard in his works. However, being also and foremost a jazz music composer he used different compositional techniques very freely. Later, Donner abandoned electronic means in his music altogether partly due to a poor quality of technology (Donner, 2013).

In his early works, Donner experimented with a spatial sound and audience participation – especially in *Ideogramme I & II* (1962-63). Both versions of the work are based on the same idea: how much the message can be disturbed before it loses its meaning. Along with the obvious influences from Cage, the main inspiration for the work came from the information theory which was current at the time. Like some of his contemporaries, Donner brought the idea to the musical context and tested how the players' synchronization and concentration could be distracted with different electronic means. *Ideogramme I & II* are the first works in Finland where musicians play along with a pre-recorded tape (Ruohomäki, 2013, pp. 7-8.).

The instrumental part of *Ideogramme I & II* consists of notation where players are instructed to play as high and as low pitches as possible, stomp with their feet and shout. The timeline is organised as a second per bar notation and players follow the score with a stopwatch. The score and the tape part for *Ideogramme I* exist in the composer's private archive. Large scale instrument parts for both versions and a radio map for *Ideogramme I* are located in the archive of Music Finland (MF No. 994: *Ideogramme I*; MF No. 582: *Ideogramme II*).

Ideogramme I consists of four instruments (fl, cl, trb, perc) and electronics. The first version was premiered in the first concert organized by Suomen Musiikkinuoriso in the small concert

hall of Sibelius Academy in December 1962. The electronic part was realized with twelve radios which turned out to be too low in volume and Donner decided to replace them with a tape for the second concert performance held in February 1963 (Heikinheimo in Ruohomäki 2013, p. 8). The tape part consists of filtered noise.

Ideogramme II was realized for the architecture exhibition *Suomi rakentaa* (Finland constructs) organized in Taidehalli (Kunsthalle) in Helsinki in April 1964 and it was the first work where live music was used in an exhibition in Finland (Ruohomäki, 2013, p. 8). According to Heiniö (1988, p. 36) it is likely that Donner was aware of the project to merge music and exhibition by Karlheinz Stockhausen and Mary Bauermeister. For *Ideogramme II* Donner raised the amount of players up to 20 and the electronics was realized with a dual mono tape recorder. The tape consisted of electronically processed noise, instrumental sound and speech (Oramo in Heiniö, 1988, p. 36). At exact moment in the score players are instructed to play any famous concerto or symphony written for his or her instrument. Comparing with *Ideogramme I* the audience participation is highlighted in *Ideogramme II*. The players and two pairs of loudspeakers were distributed in different rooms of Taidehalli. The audience could wander in and around the work and thus have different viewpoints to the work.

The audience participation and spatial distribution of sound were key features as well in Donner's *For Emmy 2* which was premiered at the Sabotage concert, the last concert organized by Suomen Musiikkinuorisio, in Ritarihuone (The House of Nobility) in October 1963. Apart from the loudspeakers and amplification of the acoustical instruments, the work didn't include electronics, but it challenged the traditional concept of a concert ritual. The players started their parts already when audience was coming in and continued to improvise while walking out of the concert hall at the end of the piece. Applauses were written as part of the work.

During 1963 and 1964 Donner was a key person in bringing the happenings to Finland together with Ken Dewey and Terry Riley as well as Swedish Jan Bark and Folke Rabe (see Donner's connections to happenings in Ruohomäki, 2013). In *Limppiece*, organized at the Ateneum Art Museum in Helsinki in April 1964, Donner diffused the sound and separate events to occupy the entire museum space. A graphic score or a guiding map for an hour long happening exists in Erkki Kurenniemi's archive (see Figure 1). The floor plan of the museum with numbered rooms is pictured in the down right corner of the score. The timeline is running from left to right with corresponding circled room numbers indicating where and when separate events are taking place. The audience is instructed to move around in the museum and follow the guiding map of the events. One part of the happening was an hour long tape (ÄÄNINAUHA; described in the bottom row throughout the score) realized by Erkki Kurenniemi. According to Mauri Antero Numminen (see Numminen in Ruohomäki, 2013, p. 11) the electronic work consisted of so slow transitions that one couldn't perceive without leaving the space for a few minutes. The tape has vanished.

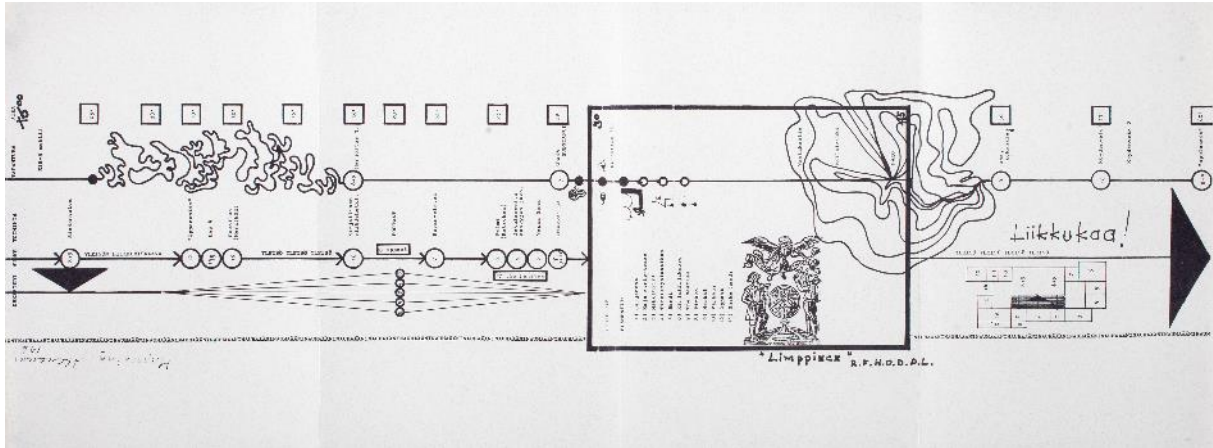


Figure 1: A guiding map for the *Limppiece* (1964) happening organized in the Ateneum Art Museum. Photo: Finnish National Gallery collections, Erkki Kurenniemi archive.

Early live processed instrument and experiments with a spatial sound

Amid Donner's early works, the experiments with a spatial sound in a concert setting were also present in Erkki Salmenhaara's works *Pan ja Kaiku* (1963, Pan and Echo) and *Concerto per due violini* (1963). Moreover, these works are the first in Finland which include live processed acoustic instruments – former composed for four cymbals and a tam-tam. Along with Donner, Salmenhaara is considered as one of the radical composers of Suomen Musiikkinuorisio. Salmenhaara composed large production where his electroacoustic and live electronic works are a sidetrack and only a part of the experimentalism he was interested in at the time. Later Salmenhaara withdrew some of the early experimental works and forbade their performance although he restored the works by the mid-90s (Heiniö, 1988, pp. 42-44; Ruohomäki, EH24/1; Uimonen, 2007, pp. 85–87).

The performance setup for *Pan ja Kaiku* and *Concerto per due violini* is the same. Instruments are located on the stage and the loudspeakers in the back of the hall behind the audience. This forms a static but somewhat heterogeneous spatial effect while dry instrument signals are in the front and their processed counterparts come from behind. The score for *Concerto per due violini* is available in the archive of Music Finland (MF No. 1039). *Pan ja Kaiku* was performed only once in April 1963 while *Concerto per due violini* had two performances, the premiere in the Jyväskylän kesä festival in July 1963 and later at the Sabotage concert in October 1963. A monophonic recording of premiered *Concerto per due violini* exists in the archive of Finnish Broadcasting Company YLE.

The score of the *Concerto per due violini* consists of a graphic second notation with instructions for expressions and dynamics, but not any note information. Graphic lines and blocks on the score refer only to the string which should be played at the given moment. For live processing, i.e. amplification (or distortion in this case; judging from the survived recording) and reverberation (at least 10 seconds according to performance instructions), there are separate instructions on the second page of the score. Overall performance instructions include such remarks as:

- the work is performed with untuned violins;
- players should avoid any tonal material;
- violins are equipped with electric guitar microphones connected to the bridge.

Salmenhaara's radical starting point to realize intentionally raw and ugly composition didn't fully succeed when contemporary reviewer wrote that "in the hands of the professional musicians the end result turned out to be instinctively tonal" (Palas in Heiniö, 1988, p. 44; translation by Mikko Ojanen). Uimonen (2007, p. 87) has aptly noted that because of this feature the work has clear indeterminist features and the performance is strongly based on the musicians' personal musical conceptions when the exact note information has left undefined in the score.

In addition to aforementioned works, Salmenhaara's electroacoustic production consists of only two tape music works. A pure electronic work for tape, *White label* (1967) consists of slow wedge like sound gestures realized with white noise, whereas the two part tape collage *Information explosion* (1967) is realized with various sounds of concrete, electronic and instrumental origin. *Information explosion* served as an acoustic canvas for 800 slides by interior designers Ilmari and Timo Tapiovaara in the Man in the Electronic Community of the World Expo 1967 in Montreal. Salmenhaara's electronic sound design for two TV programmes *Aggressio* (Aggression, 1968) and *Maan aurinko* (Sun of the Earth, 1968) include variety of electronic sounds and electronic manipulation of acoustic sounds (Uimonen, 2007, pp. 89–90).

Electrified machine poems and experimental films

The collaboration between Donner, Kurenniemi and experimental film maker Eino Ruutsalo spawned several projects during the 1960s. The early projects include electronic music for Ruutsalo's experimental films such as *Kaksi kanaa* (Two Chickens, 1963 tape music collage by Donner), *Hyppy* (The Jump, 1965, electronic music by Kurenniemi) and *Romutaiteilija* (A Junk Artist, 1965, concrete music by Donner). However, the special interest in their collaboration within the scope of this paper is an experimental event *Sähkö-shokki-ilta* which was a part of Ruutsalo's *Valo ja Liike* (Light and Motion) exhibition organized in the Amos Anderson Art Museum in Helsinki in February 1968.

Ruutsalo describes his starting point for the exhibition in the programme release of the event: "We have to set pictures in motion whatever it takes. For there is no life without motion. In stillness lurks death." (Ruutsalo in Home, 2013, p. 17; translation by Mikko Ojanen)

In the exhibition, this declaration was realized with moving lights, pictures and films were projected on the walls, light kinetic works were constantly transforming and audience was allowed to touch the sculptures. A tape music collage 22'20" consisting mainly of sounds edited from the soundtracks of the aforementioned experimental films was played repeatedly in the exhibition space (Home, 2013, p. 17). The exhibition had unexpectedly good reception. Within its eight days, *Valo ja liike* reached 4334 visitors which was well over the anticipation. Especially art teachers eagerly brought their students into the exhibition (Home, 2013, p. 22).

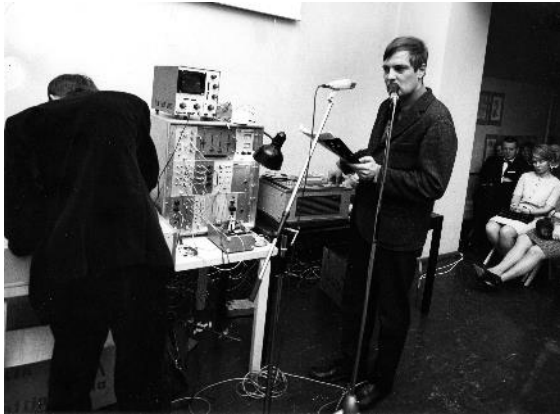
As a part of the exhibition Ruutsalo also organized concerts. The first concert, *Sähkö-shokki-ilta* (Electric Shock Evening) was organized on the 9th of February. The evening consisted of Johann Sebastian Bach's *Invention No. 3 and 4* on a pipe organ played from the tape, an electronic tape music work *Saharan Uni* by Kurenniemi and Kari Hakala, an improvisation with Electric Sound Machine (later known as Integrated synthesizer, 1964) by Kurenniemi and Donner accompanied by Donner's younger brother Philip with an amplified zither (see Figure 2), the machine poems and an electronic guitar improvisation *Execethis* by Donner.



Figure 2: *Sähkö-shokki-ilta* (Electric Shock Evening) at the Amos Anderson Art Museum in February 1968. Henrik Otto Donner with the microphone, Philip Donner and Mattijuhani Koponen at the zither. Photo: The Amos Anderson Art Museum.

Only pictures survived from the concert evening – no audio document. However, a reel tape from the rehearsals on the day before the concert exists. This recording is not an intentional document, although it has a significant documentary value. It is a tape from the tape recorder used as a delay for the machine poems. The tape is dual mono recording where delayed signals are ping-ponging from right to left. Later Ruutsalo used a monophonic version of the tape as a soundtrack to his film *Runoja 60-luvulta* (Poems from the '60s, 1987) (Home, 2013, pp. 20–22).

Whether a stereo configuration was used to form a spatial effect in the exhibition space is impossible to confirm after 50 years. Judging from the pictures no complex loudspeaker setup was built in the exhibition space (see Figures 2, 3 and 4). Apart from the distinctive Vox speaker grill (likely a Vox PA-system) speakers are not visible in the pictures. According to Ruutsalo's declaration of motion and considering, for example, that *Saharan Uni* was the first stereophonic electroacoustic work in Finland as well as the earlier radical experiments with a spatial sound by Donner, who acted as a musical conductor of the evening, the sound diffusion experiments would have been more than obvious.



Erkki Kurenniemi at Integrated Synthesizer and Claes Andersson reading poems at the microphone



Henrik Otto and Philip Donner playing recorders

Figures 3 and 4: *Sähkö-shokki-ilta* (Electric Shock Evening) at the Amos Anderson Art Museum in February 1968. Photos: The Amos Anderson Art Museum.

Later the tape, which was fortunately digitized by composer Jukka Ruohomäki in the 1990s, has been lost. Ruohomäki's digitized version was released by the Ektro records in August 2013. An excerpt of this early Finnish machine poetry with electronic improvisation can be heard on the Ektro records' SoundCloud page – the example introduces the following machine poem reading by Kalevi Seilonen:

Olen nyt kone ja puhun.

Olen laskenut, että sinä kuulet tämän.

Siis kuuntele!

Art Power. Art Power. Art Power!

R U N O U S

Varmasti ei ole hiljaisuutta

Varmasti ei ole tyhjiä

Varmasti ei ole pimeyttä

Aivan varmasti valoa on.

A I – AI

V O T – VOT

AIVOT

Now I'm a machine and I speak.

I have counted that you hear this.

So listen!

Art Power. Art Power. Art power!

P O E T R Y

Without a doubt there's no silence

Without a doubt no emptiness

Without a doubt no darkness

Certainly there is light.

B R A I N

(Translation by Mikko Ojanen)

Kurenniemi's electronic musical instrument design

In the early years of Finnish electroacoustic music Erkki Kurenniemi's instrument design is a chapter of its own. During the first two decades of electroacoustic music in Finland Kurenniemi played a central role in designing the instruments and collaborating with Finnish and Swedish artists. Along with his instrument design Kurenniemi pursued the artistic career of his own. His production includes a vast amount of archival material including electronic tape music, experimental films, photography, paintings and writings on various viewpoints to music, technology and future.

Kurenniemi's composition method presents an early example of applying live performance in the studio work. This reflects his impulsive way of working and it was present already in his first work *On-Off* (1963), which was completed as a real time live improvisation with the material tapes and studio equipment – or in his first electronic musical instrument *Integrated Synthesizer* (1964), which was capable of real-time sequencing and sound synthesis. Later, Kurenniemi even postulated his method as the composition rules – e.g. “the work has to be finished in a single day”.

In his electronic musical instrument design, Kurenniemi used the advanced applications of digital controlling methods for sequencers and memory units. Furthermore, his interface design challenged the traditional means of interacting with the instrument – in some cases not only with the player but also with the audience. Kurenniemi's designs led the Finnish scene to a unique position in the fields of electroacoustic and avant-garde music, and it was recognized in the Nordic countries.

The first commissioned instrument from Kurenniemi was *Sähkökvartetti* (1968, Electric quartet). By the avant-garde artist Mauri Antero Numminen's request, Kurenniemi realized a collective electronic instrument for four players. Each of four controllers is interconnected together through the main frame, resulting in a performance which output is a combination of four players' actions. The layout of the instrument sets up somewhat chaotic premises for the interactive performance. Furthermore, the user interface and the sequencer of the instrument set certain constraints which drive the overall performance process.

Numminen used the instrument with his band *Sähkökvartetti* and they always played only one improvised piece entitled *Kaukana väijyy ystäviä* (1968, Far Away Lurk Friends). *Sähkökvartetti*, i.e. M.A. Numminen, Peter Widén, Tommi Parko and Mamba Koskinen, made their famous appearance in the Youth festival in Sofia, Bulgaria in 1968 where 4000 members of the audience walked out from the concert hall during their show. The band was active until 1970. Later, they have made only one public performance together in the Avanto festival in 2002. An early excerpt recorded by YLE for TV-performance *Ungdom för helvete!* (1969) has survived.

In the line of Kurenniemi's instrument design *Sähkökvartetti* was followed by a sequencer synthesizer *Andromatic* (1968) commissioned by Swedish composer Ralph Lundsten. The newly build instrument was displayed in the exhibition *Den immateriella processen* (The immaterial process, 1968) in the Konstsalongen Samlaren (Sammlaren Art Parlour) in Stockholm together with Lundsten's electronic pictures. Shortly after, the instrument was part of *Feel It* exhibition (1968) in the Nationalmuseum in Stockholm. In 1969, the exhibition was moved to the Museum of Contemporary Crafts in New York (Lundsten, 2006, p. 53; see also a press release for *Feel it* in New York). In *Feel it* exhibition *Andromatic* produced electronic music and controlled the lights of an acrylic sculpture (see Figure 5). Also the audience was allowed to participate in the work by modifying the sequencer of the instrument (for more information on *Andromatic* see Städje, 2012; Ojanen, Lassfolk, 2012).



Figure 5: Andromatic in Feel it -exhibition (1968–69). “[A] sculptural panel for your eyes and ears” called Andromatic created by Olle Adrin with sound programmed by Ralph Lundsten and Leo Nilson. Photo in the Finnish National Gallery collections, Erkki Kurenniemi archive.

Photo by courtesy of Ralph Lundsten.

Kurenniemi’s other user interfaces are stretching the constraints of the traditional methods of interacting with an instrument and searching for the new means of performing music even further. Probably, the most provocative instrument is *DIMI-S* aka *Sexophone* (1972) played by several people touching each other to the bare skin while holding iron balls in their hands (see Figure 6). *DIMI-S* was designed in a collaboration with Lundsten who stressed that the instrument is to be used only for fun – not as a studio instrument. (For detailed information on *DIMI-S* see Städje 2009.) Among his other instruments Kurenniemi played *DIMI-S* together with Mika Vainio, Ilpo Väisänen and Carl Michael von Hausswolff Avanto festival in Helsinki in 2002 (*DIMI-S* part starts at 17:55). Along with *DIMI-S*, *DIMI-T* aka *Electroencephalophone* (1973), which uses the player’s EEG as a control signal for the oscillator’s pitch, was inspired by an idea of biofeedback as a musical control signal.

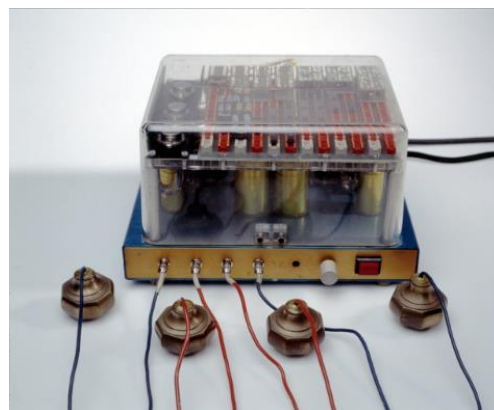


Figure 6: *DIMI-S* in Erkki Kurenniemi’s archive maintained by the Finnish National Gallery. Photo: Finnish National Gallery collections, Erkki Kurenniemi archive.

These biofeedback instruments were used even in concert settings, although the resulting performances equalled more of a demonstration than a serious concert. Whereas, *DIMI-O* (1971), an electric organ equipped with a video camera, was used with more interesting results, when the camera was aimed at the conductor’s hands or faces in the audience and

converted these gestures into music. Kurenniemi presented the instrument on a document recorded by YLE in 1971 (see DIMI ballet and DIMI-O showcase), (for detailed information on DIMI-O see Städje 2013).

For a trip to Norway Kurenniemi wrote an application for a grant and outlined performance instructions for an intermedia work *DEAL* (1971) where a dancer creates his or her own musical accompaniment by dancing in front of the video camera of the instrument. *DEAL* was performed once in Oslo in 1972. Other experiments with the instrument included psychological tests and experimental theater. In Oslo Norwegian theater group performed Samuel Beckett's play *Act without words* in front of the DIMI-O's camera (See Figure 7). In psychological tests, DIMI-O's camera was reading testees' facial gestures while they were reading Rorschach pictures. Eventually, DIMI-O was sold to Lundsten's studio where it was frequently used until the dismantling of Andromeda in the spring 2014.



Figure 7: DIMI-O and Samuel Beckett's play *Act without words* in Oslo by a theater group Scene 7. Screen shot from the video in the Finnish National Gallery collections, Erkki Kurenniemi archive.

Conclusions

The early development of Finnish electroacoustic music has been interpreted as dividing into two periods. Depending on the viewpoint, the first intensive period ended in the mid-60s and the second one started gradually by the late-60s. (Kuljuntausta, 2008, p. 304.) While this might be an accurate notion when counting the number of composed works and organized concerts in Finland during that time, working at the grass roots level never fully halted. The phased development is not unexpected and intensive bursts reflect the new generation's search for the novel aesthetic expressions and attempt to break out from the old tradition, which is closely described, for example, by Heiniö (1988).

In Finland, especially the concert settings and the interdisciplinary art context were the primary playgrounds to experiment with the new technology and search for the new aesthetical expression. Right from its early days in Finland electroacoustic music (or experiments with electronic mediated music) went beyond the traditional concert setting – and during its first decade strongly towards sound art. Furthermore, during the 1960s a certain shift from avant-garde to underground and from happenings to intermedia art can be observed. Interestingly, a similar attempt to break out from the old tradition and set the ground for the new aesthetic expression that arose from the experiments of Suomen Musiikkinuorisio and can be read from the declaration by Ruutsalo (Laiho, 1982, p. 17; Home, 2013, p. 17).

Considering this period of early development until the early 1970s – the exploring period as described by Heiniö (1995, p. 178) – even the use the term *electroacoustic music* in Finland can be questioned or at least the works should be studied more closely to draw a clearer picture of the period. As argued by Heiniö (1988) the 1960s was a period of pluralism and towards the end of the decade, many composers gave up using electronic means in their works. When the 1960s was coming to an end and at the beginning of the 1970s, composers were more stable with their style and produced the more coherent repertoire of works. This can be seen in the output of the composers from the second wave of Finnish electroacoustic music such as Osmo Lindeman, Jukka Ruohomäki or Patrick Kosk.

During the 1960s, for many composers and artists, electronic technology was only a tool for aesthetical expression as much as the traditional instrument. This can be seen in the experimental concert and happening performances of the 1960s as well as in the development of composers' styles. Furthermore, this can be read as well from the comment by Donner (2013): "I always had a utilitarian stance towards technology. I'm only interested in the sounds one can produce with the technology – not how the technology works."

References

- DONNER Henrik Otto, *Taped interview by Marko Home and Mikko Ojanen*, Helsinki, 29 April 2013.
- HEINIÖ Mikko, *Lastenkamarikonserteista pluralismiin postmoderneja piirteitä uudessa suomalaisessa musiikissa*, Helsinki, Suomen musiikkitieteellinen seura, 1988.
- HEINIÖ Mikko, *Suomen musiikin historia 4: Aikamme musiikki: 1945–1993*, Porvoo, WSOY, 1995.
- HOME Marko, "Uuden tuulen havinaa ilmassa: Sähkö-shokki-ilta 1968", *Musiikin suunta*, 35(3), 2013, pp. 17–23.
- KORHONEN Kimmo, "New music of Finland", *New Music of the Nordic Countries*, John D. White (ed.), Hillsdale (NY, USA), Pendragon Press, 2002, pp. 121–286.
- KULJUNTAUSTA Petri, *First wave: a microhistory of early Finnish electronic music*, Helsinki, Like, 2008.
- LAIHO Timo, "Suomen musiikkinuorison 'lastenkamarikonsertit' ja niihin liittynyt lehdistöpolemiikki 1962–64", *A seminar report*, Helsinki, Department of Musicology, University of Helsinki, 1982.
- LUNDSTEN Ralph, *En själens vagabond*, Stockholm, Andromeda Music AB, 2006.
- OJANEN Mikko, LASSFOLK Kai, "Material tape as a piece of art: case studies of an inconstant work-concept in Erkki Kurenniemi's Electroacoustic Music", in *Proceedings of the Electroacoustic Music Studies Network Conference (EMS12): Meaning and Meaningfulness in electroacoustic Music*, Stockholm, 2012, www.ems-network.org/IMG/pdf_EMS12_ojanen_lassfolk.pdf (last accessed 09/14).
- RUOHOMÄKI Jukka, unpublished manuscript of the history of the electronic music in Finland, referred as Ruohomäki EH, pdf copy of the manuscript in the Mikko Ojanen's personal archives

RUOHOMÄKI Jukka, "Henrik Otto Donner ja elektroninen musiikki", *Musiikin suunta*, 35(3), 2013, pp. 6–14.

STÄDJE Jörgen, "Kärleksmaskinen – synten man spelar med hela kroppen", *IDG.se*, 2009, www.idg.se/2.1085/1.269878/karleksmaskinen---synten-man-spelar-med-hela-kroppen (last accessed 09/14).

STÄDJE Jörgen, "Andromatic, den automatiska andromedaren", *IDG.se*, 2012, www.idg.se/2.1085/1.445306/andromatic-den-automatiska-andromedaren (last accessed 09/14).

STÄDJE Jörgen, "Ett slag i luften för vacker musik", *IDG.se*, 2013, www.idg.se/2.1085/1.514246/ett-slag-i-luften-for-vacker-musik (last accessed 09/14).

UIMONEN Tanja, "Erkki Salmenhaaran elektroakustiset teokset 1960-luvun säveltäjäkuva", *Musiikki*, 37(4), 2007, pp. 85–99.

Links to the examples in internet

ADRIN Olle, Ralph LUNDSTEN, Leo NILSON and Erkki KURENNIEMI, *Feel it*, a press release at the Museum of Contemporary Crafts in New York, 1969, http://craftcouncil.org/sites/craftcouncil.org/files/M-64_PressRelease.pdf (last accessed 09/14).

DONNER Henrik Otto, *Ideogramme I*, instrument parts and a radio map in the archive of Music Finland (MF No. 994), 1962–63, <http://composers.musicfinland.fi/musicfinland/nuotisto.nsf/0/2E266113A130A56BC225687E00292201?opendocument> (last accessed 09/14).

DONNER Henrik Otto, *Ideogramme II*, instrument parts in the archive of Music Finland (MF No. 582), 1963, <http://composers.musicfinland.fi/musicfinland/nuotisto.nsf/0/9DB7F2667753B6C7C225687E00292242?opendocument> (last accessed 09/14).

KURENNIEMI Erkki, *DIMI-O*, a synthesizer with a video control, 1971, www.youtube.com/watch?v=d-yHULQ2V5c (last accessed 09/14).

NUMMINEN Mauri Antero, Peter WIDÉN, Mamba KOSKINEN and Tommi PARKO, *Kaukana väijyy ystäviä (Far Away Lurk Friends)*, a collective improvisation with Sähkökvartetti, 1969, www.youtube.com/watch?v=J19o3s0ytZw (last accessed 09/14).

RUUTSALO Eino, *Kaksi kanaa* (Two chickens), an experimental film, 1963, <http://vimeo.com/69209585> (last accessed 09/14).

RUUTSALO Eino, *Hyppy (The Jump)*, an experimental film, 1965, www.youtube.com/watch?v=u_Z0CvGPu64 (last accessed 09/14).

RUUTSALO Eino *et al.*, *Sähkö-shokki-ilta (Electric-Shock-Evening)*, an experimental concert including machine poems and electronic music, 1968, <https://soundcloud.com/ektrerecords/claes-andersson-kalevi-1> (last accessed 09/14).

SALMENHAARA Erkki, *Concerto per due violini*, the score in the archive of Music Finland (MF No. 1039), 1963,
<http://composers.musicfinland.fi/musicfinland/nuotisto.nsf/0/CE91A175DA7BE16BC225687E002BB942?opendocument> (last accessed 09/14).

VÄISÄNEN Ilpo (Pan sonic), Mika VAINIO (Pan sonic), Carl Michael von HAUSSWOLFF and Erkki KURENNIEMI, *DIMI-S performance*, in Kiasma Theatre Helsinki 21 November 2002, <http://vimeo.com/60042419> (last accessed 09/14).

Introduced works and instruments

ADRIN Olle, Ralph LUNDSTEN, Leo NILSON and Erkki KURENNIEMI, *Feel it*, a sculptural panel for your eyes and ears, 1969.

DONNER Henrik Otto, *Ideogramme I*, for quartet and 12 radios/tape, 1962-63.

DONNER Henrik Otto, *Ideogramme II*, for orchestra and tape, 1963.

DONNER Henrik Otto, *For Emmy*, for orchestra and loudspeakers, 1963.

DONNER Henrik Otto, *Limppiece*, a happening for the Ateneum Art Museum, 1964.

KURENNIEMI Erkki, *Sähkökvartetti (Electric Quartet)*, a collective electronic music instrument, 1968.

KURENNIEMI Erkki, *Andromatic*, a synthesizer with a ten-step sequencer, 1968.

KURENNIEMI Erkki, *DIMI-O*, an electric organ with a video control, 1971.

KURENNIEMI Erkki, *DIMI-S*, a collective electronic music instrument, 1972.

KURENNIEMI Erkki, *DIMI-T*, a brainwave controlled oscillator, 1973.

KURENNIEMI Erkki, *DEAL*, an intermedia composition for DIMI-O and a dancer, 1971.

NUMMINEN Mauri Antero, Peter WIDÉN, Mamba KOSKINEN and Tommi PARKO, *Kaukana väijyy ystäviä (Far Away Lurk Friends)*, a collective improvisation, 1968-70.

RUUTSALO Eino, *Sähkö-shokki-ilta (Electric-Shock-Evening)*, an experimental concert including machine poems and electronic music, 1968.

SALMENHAARA Erkki, *Concerto per due violini*, for two violins and loudspeakers, 1963.

SALMENHAARA Erkki, *Pan ja Kaiku (Pan and Echo)*, for four cymbals, a tam-tam and loudspeakers, 1963.

SALMENHAARA Erkki, *White Label*, electronic tape music, 1963.

SALMENHAARA Erkki, *Information Explosion*, tape music collage, 1967.